

EX

Notice of Allowability	Application No.	Applicant(s)	
	10/723,428	MONSKI ET AL.	
	Examiner	Art Unit	
	Tiffany A. Fetzner	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 9/22/2005 & the telephonic interview of 12/01/2005.
2. ☒ The allowed claim(s) is/are 99-173.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☒ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☒ hereto or 2) ☐ to Paper No./Mail Date 12/05/2005.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted: Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>08/17/2005</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>12/05/2005</u>. 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
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Examiner's Amendment

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

2. Authorization for this examiner's amendment was given in a telephone interview with **Attorney James R. Stevenson Reg. No. 38,755** on December 1st 2005 along with authorization to charge any necessary fees to applicant's deposit account. No fees are believed to be due at this time.

3. The application has been amended as follows:

A1) Cancel claims 1-98.

A2) Replace claim 99 of the September 22nd 2005 amendment and response with the following Examiner amended claim 99:

Claim 99 ---A head coil for use with a magnetic resonance (MR) system capable of acquiring images of a region of interest using parallel imaging techniques; the head coil comprising:

(a) a first ring at an inferior end of the head coil, said first ring being electrically conductive and having a first diameter through which the region of interest is provided access to the head coil;

(b) a second ring at a superior end of the head coil, said second ring being electrically conductive and having a second diameter smaller than said first diameter of said first ring; and

(c) a plurality of rods electrically interconnecting said first and said second rings to form a birdcage-like structure therewith, each of said rods having a linear portion and a tapered portion with said linear portion being connected to said first ring and said tapered portion being connected to said second ring, said tapered portions of said rods collectively providing the head coil with a substantially homogeneous pattern of magnetic flux density in at least one of three orthogonal imaging planes of the head

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coil while performing at least one of maintaining and improving a signal-to-noise ratio of the head coil;

wherein said rods and said first and said second rings of the head coil are configured to produce about the birdcage-like structure a plurality of partially-overlapped primary resonant substructures, with each of said primary resonant substructures including two of said rods and a corresponding section of each of said first and said second rings interconnecting them such that each of said primary resonant substructures (i) partially overlaps each of its neighboring primary resonant substructures and electrically shares therewith a region of overlap created thereby and (ii) is capable of receiving magnetic resonance signals from a portion of the region of interest within its field of view thus enabling each of said primary resonant substructures to convey the magnetic resonance signals received thereby via a separate port to the MR system.---

B) Replace claim 117 of the September 22nd 2005 amendment and response with the following Examiner amended claim 117:

Claim 117 ---A coil for use with a magnetic resonance (MR) system; the coil comprising:

- (a) a first ring at one end of the coil, said first ring being electrically conductive and having a first diameter;
- (b) a second ring at an other end of the coil, said second ring being electrically conductive and having a second diameter; and
- (c) a plurality of rods electrically interconnecting said first and said second rings to form a birdcage-like structure therewith;

wherein said rods and said first and said second rings of the coil are configured to produce about the birdcage-like structure a plurality of partially-overlapped primary resonant substructures, with each of said primary resonant substructures including two of said rods and a corresponding section of each of said first and said second rings interconnecting them such that each of said primary resonant substructures (i) partially overlaps each of its neighboring primary resonant substructures and electrically shares therewith a region of overlap created thereby and (ii) is capable of receiving magnetic resonance signals from tissue within its field of view thus enabling each of said primary resonant substructures to convey the magnetic resonance signals received thereby via a separate port to the MR system. ---

C) Replace claim 140 of the September 22nd 2005 amendment and response with the following **Examiner amended claim 140**:

Claim 140 --- A coil for use with a magnetic resonance (MR) system; the coil comprising:

(a) a pair of electrically conductive rings, each of said rings being disposed approximately at an opposite end of the coil from the other; and

(b) a plurality of rods electrically interconnecting said rings to form a birdcage-like structure therewith;

wherein said rods and said rings of the coil are configured to produce about the birdcage-like structure a plurality of partially-overlapped primary resonant substructures, with each of said primary resonant substructures including two of said rods and a corresponding section of each of said rings interconnecting them such that each of said primary resonant substructures (i) partially overlaps each of its neighboring primary resonant substructures and electrically shares therewith a region of overlap created thereby and (ii) is capable of receiving magnetic resonance signals from tissue

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within its field of view thus enabling each of said primary resonant substructures to convey the magnetic resonance signals received thereby via a separate port to the MR system.---

D) Replace claim 163 of the September 22nd 2005 amendment and response with the following **Examiner amended claim 163**:

Claim 163 --- A coil for use with a magnetic resonance (MR) system; the coil comprising:

(a) a first end member approximate one end of the coil, said first end member being electrically conductive;

(b) a second end member approximate an other end of the coil, said second end member being electrically conductive; and

(c) a plurality of rods electrically interconnecting said first and said second end members to form a unitary structure therewith;

wherein said rods and said first and said second end members are configured to yield about the unitary structure a plurality of partially-overlapped primary resonant substructures, with each of said primary resonant substructures including two of said rods and a corresponding section of each of said first and said second end members interconnecting them such that each of said primary resonant substructures (i) partially overlaps its neighboring primary resonant substructure(s) and electrically shares therewith a region of overlap created thereby and (ii) is capable of receiving magnetic resonance signals from tissue within its field of view thus enabling each of said primary resonant substructures to convey the magnetic resonance signals received thereby to the MR system. ---

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E) Replace claim 172 of the September 22nd 2005 amendment and response with the following **Examiner amended claim 172**:

Claim 172 --- A neurovascular array for use with a magnetic resonance (MR) system; the neurovascular array comprising:

(a) a head coil including:

(I) a first ring approximate one end of the head coil, said first ring being electrically conductive and having a first diameter,

(II) a second ring approximate an other end of the head coil, said second ring being electrically conductive and having a second diameter, and

(III) a plurality of rods electrically interconnecting said first and said second rings to form a birdcage-like structure therewith,

wherein said rods and said first and said second rings of the head coil are configured to produce about the birdcage-like structure a plurality of partially-overlapped primary resonant substructures, with each of said primary resonant substructures constituting a coil element having two of said rods and a corresponding section of each of said first and said second rings interconnecting them such that each of said coil elements (i) partially overlaps each of its neighboring coil elements and electrically shares therewith a region of overlap created thereby and (ii) is capable of receiving magnetic resonance signals from tissue within its field of view;

(b) an anterior neck coil including at least one coil element; and

(c) a posterior cervical spine coil including at least one coil element. ---

The following is an examiner's statement of **Reasons for Allowance**:

4. With respect to **Examiner amended independent claims 99, 117, 140, 163, and 162**: These claims are allowable over the **Srinivasan et al.**, references because the **Srinivasan et al.**, references fail to teach suggest or show **in claim 172 that “said rods and said first and said second rings of the head coil are configured to produce about the birdcage-like structure a plurality of partially-overlapped primary resonant substructures, with each of said primary resonant substructures constituting a coil element having two of said rods and a corresponding section of each of said first and said second rings interconnecting them such that each of said coil elements (i) partially overlaps each of its neighboring coil elements and electrically shares therewith a region of overlap created thereby and (ii) is capable of receiving magnetic resonance signals from tissue within its field of view;”** in combination with each of the other limitations of this examiner amended independent claim. All of the other **examiner amended independent claims** (i.e. **claims 99, 117, 140, and 163**) also contain similar limitations although expressed in differing but equivalent terms since a birdcage coil is a coil structure comprised of rings and rods, with the rods separating the rings spatially, but also forming a connection between them.

5. Additionally the prior art of record including the art cited on **applicant's August 17th 2005 IDS statement** and the cited references on the **Examiner's PTO 892** form attached to this office action do not disclose or suggest an MRI apparatus/method comprising the limitations of “said rods and said first and said second end members are configured to yield about the unitary structure a plurality of partially-overlapped primary resonant substructures, with each of said primary resonant substructures including two of said rods and a corresponding section of each of said first and said second end members interconnecting them such that each of said primary resonant substructures (i) partially overlaps its neighboring primary resonant substructure(s) and electrically shares therewith a region of overlap created thereby and (ii) is capable of receiving magnetic resonance signals from tissue within its field of view thus enabling each of said primary resonant substructures to convey the magnetic resonance signals received

thereby to the MR system" as set forth in **examiner amended claim 163** and in the other Examiner amended independent **claims 99, 117, 140, and 172 in combination with the remaining limitations of each of the claims**. It is the combination each and every one of the claim limitations taken as a whole that constitutes both the novelty and non-obviousness of each of applicant's **examiner amended independent claims 99, 117, 140, 163 and 172**.

6. Each of the depending claims from **100 through 173** is considered to be allowable by the examiner because they depend from an examiner amended allowable independent claims. Full support for applicant's primary resonant structures, with neighboring overlap in the single coil structure can be most clearly seen from figures 10, 11, and from figures 2a and 2b taken in combination with one another, in conjunction with the appropriate specification text. No new matter was added by the examiner's amendments made herein.

7. The **Reisker et al.**, and **Bock et al.**, **prior arts of record** which have one or more common inventors as the instant application because of the arguments presented by applicant's representative, in the: "STATEMENT OF PATENTABLE DIFFERENCES BETWEEN CITED PRIOR ART AND CLAIMS OF U.S. APPLICATION No. 10/723,428" which was provided by the applicant for entry by the examiner with the above examiner's amendment as a result of the December 1st 2005 telephonic interview in order to clarify the points of novelty of the instant application over applicant's earlier filed prior art of record, which has been provided below for the purposes of a complete record of the instant application.

"STATEMENT OF PATENTABLE DIFFERENCES BETWEEN CITED PRIOR ART AND CLAIMS OF U.S. APPLICATION No. 10/723,428 (Provided by applicant)"

I. U.S. Patent 6,344,745 B1 Titled "Tapered Birdcage Resonator For Improved Homogeneity In MRI"

The '745 patent discloses a head coil that has two pickup points --one 90 degrees from the other. This enables the '745 head coil to detect both the horizontal and vertical components of the magnetic resonance signals. Although this head coil operates in quadrature, it is still operates as a single resonant structure for the purposes of

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detecting the MR signals at the operating frequency and then conveying those signals to the MR system. Like other conventional birdcage coil designs, the '745 head coil also exhibits other resonant frequencies --which are dependent on the geometry of the birdcage-- but those frequencies are either higher or lower than the operating frequency and thus are discarded (not used).

The '745 patent does not teach a head coil --or any other coil-- of the type claimed in the independent claims (i.e., 99, 117, 140, 163 and 172). The claimed coils do not function as a single resonant structure, as they each feature a plurality of partially-overlapped primary resonant substructures, each of which partially overlapped by its neighbor and with whom it electrically shares a region of overlap created thereby. Each primary resonant substructure detects MR signals within its field of view and conveys the MR signals it receives to the MR system via a separate port. The '745 patent does not disclose such primary resonant structures, as it teaches only a single resonant structure that operates at the operating frequency. The limitations cited above --as well as others-- patentably distinguish the claimed invention from the teaching of the '745 patent.

II. **U.S. Patent 6,831,460 B2 Titled "Coil Structure With Tapered Conductive Members For Improved Homogeneity In MRI"**

This patent was granted on U.S. Application 10/068,300, which was a continuation of U.S. Application 09/449,256. The '256 application issued as U.S. Patent 6,344,745 above. The '300 application was published as U.S. Publication 2003/0071622 A1 on 17 April 2003. Because the '460 patent and the published '300 application share the same disclosure as the '745 patent, the above statement also applies to the '460 patent and the '300 application.

III. **U.S. Patent 6,549,799 B2 Titled "Concurrent MRI Of Multiple Objects"**

This patent was granted on U.S. Application 09/837,913, which was filed 18 April 2001 and published as U.S. Publication 2002/0156362 A1 on 24 October 2002. This patent discloses an apparatus that enables images to be acquired concurrently for a corresponding plurality of objects (e.g., mice). The apparatus includes an MRI scanner having (i) a main magnet with which to provide a uniform magnetic field, (ii) gradient coils for providing the frequency encoding and phase encoding gradient pulses, (iii) a transmitter for supplying the RF power with which to apply the RF pulse(s) during the transmit cycle of the MRI system, and (iv) a plurality of receivers.

More relevant to the matter at issue, the apparatus also includes **an array of birdcage coils**. As best shown in Figure 3 with reference to Figure 4, the birdcage coils 56 are each mounted within an acrylic support 62 (col. 7, lines 4-11) and are collectively

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closely-packed in a hexagonal arrangement, which is also referred to as a honeycomb structure. (col. 5, lines 23-27; col. 7, lines 8-10) Each acrylic support 62 also features a shield (not shown) that surrounds its exterior, which is intended to attenuate RF coupling between "**otherwise independent [birdcage] coils.**" (col. 7, lines 9-11) As best shown in Figure 3, the entire honeycomb-shaped array is designed to be inserted into the bore 11 of the MRI scanner. (Id.) Each birdcage coil in the array has 16 rods distributed over a 3 cm diameter by 10 cm long cylindrical form (col. 7, lines 27-29), which is ideally sized for housing a mouse. The array of birdcage coils 56 thus enables a subgroup of an array of mice to be concurrently studied.

The '799 patent does not teach a head coil --or any other coil-- of the type claimed in the independent claims of the application at issue. In terms of RF coils, the '799 patent teaches only an array of birdcage coils in which the coils are closely packed into a honeycomb like structure. In contrast, claim 99 of the application at issue, for example, is directed to a single birdcage-like structure in which a plurality of partially-overlapped primary resonant substructures is created by a novel tuning scheme. Each such primary resonant substructure in that single coil structure is partially overlapped by at least one of its neighbors with whom it electrically shares a region of overlap created thereby. The '799 patent does not teach a plurality of partially-overlapped primary resonant substructures created within a single coil structure but a multitude of birdcage coils in a honeycombed-shaped array of such birdcage coils. For the above reasons as well as others, the claims of the application at issue are patentably distinguishable from the teachings of the '799 patent.

IV. Summary

Each independent claim in the application recites a single coil that is comprised of rings (or end members) that are electrically interconnected with rods, and the novelty lies in the way the rods and rings (end members) are configured. In independent claims 99, 117, 140 and 172, the rings and rods form a birdcage-like structure. Similarly, in independent claim 163 as amended, the end members and rods form a unitary structure.

By way of background, it is well known that a conventional birdcage coil resonates at multiple frequencies during the receive cycle of the MR system. The number of frequencies at which resonance occurs is dependent upon the geometry of the birdcage, i.e., a conventional birdcage having n rods will have $n-1$ resonant frequencies. For example, a conventional birdcage coil that has 8-rods will exhibit 7 resonant frequencies, which are alluded to below for illustrative purposes:

- (1) **Rods 1 and 5 (180 degrees apart) and the end rings interconnecting them** exhibit the same resonant frequency as **Rods 2 and 6 (180 degrees apart) and the end rings interconnecting them**, which in turn exhibit the same resonant frequency as **Rods 3 and 7 (180 degrees**

apart) and the end rings interconnecting them, which in turn exhibit the same resonant frequency as Rods 4 and 8 (180 degrees apart) and the end rings interconnecting them;

- (2) Rods 1 and 2 (45 degrees apart) and the end rings interconnecting them exhibit the same resonant frequency as Rods 2 and 3 (45 degrees apart) and the end rings interconnecting them, which in turn exhibit the same resonant frequency as Rods 3 and 4 (45 degrees apart) and the end rings interconnecting them, which in turn exhibit the same resonant frequency as Rods 4 and 5 (45 degrees apart) and the end rings interconnecting them, and so on for rods 45 degrees apart;**
- (4) Rods 1 and 3 (90 degrees apart) and the end rings interconnecting them exhibit the same resonant frequency as Rods 2 and 4 (90 degrees apart) and the end rings interconnecting them, which in turn exhibit the same resonant frequency as Rods 3 and 5 (90 degrees apart) and the end rings interconnecting them, which in turn exhibit the same resonant frequency as Rods 4 and 6 (90 degrees apart) and the end rings interconnecting them, and so on for rods 90 degrees apart;**
- (5) Rods 1 and 4 (135 degrees apart) and the end rings interconnecting them exhibit the same resonant frequency as Rods 2 and 5 (135 degrees apart) and the end rings interconnecting them, which in turn exhibit the same resonant frequency as Rods 3 and 6 (135 degrees apart) and the end rings interconnecting them, which in turn exhibit the same resonant frequency as Rods 4 and 7 (135 degrees apart) and the end rings interconnecting them, and so on for rods 135 degrees apart;**
- (6) Rods 1 and 6 (225 degrees apart) and the end rings interconnecting them exhibit the same resonant frequency as Rods 2 and 7 (225 degrees apart) and the end rings interconnecting them, which in turn exhibit the same resonant frequency as Rods 3 and 8 (225 degrees apart) and the end rings interconnecting them, and so on for rods 225 degrees apart; and**
- (7) Rods 1 and 7 (270 degrees apart) and the end rings interconnecting them exhibit the same resonant frequency as Rods 2 and 8 (270 degrees apart) and the end rings interconnecting them, and so on for rods 270 degrees apart.**

Regarding (2) through (7) above, as is well known, each conventional birdcage coil exhibits these other resonance modes but they occur at frequencies other than (i.e., above or below) the operating frequency. As such, they are known as secondary resonances. Because they are secondary resonances, they are not used.

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Regarding (1) above, this resonant frequency is the operating frequency of the MR system. During the receive cycle of the MR system, this resonance mode is induced within the birdcage coil due to the MR signals it receives from the tissue located within the birdcage. Because it is designed to occur at the operating frequency, this resonance mode is in fact the primary resonance mode of the birdcage coil. Each rod pair resonates at the primary frequency and the end rings interconnecting them constitute the return path for the current induced by the MR signals. Consequently, the birdcage in its entirety is said to resonate at the operating frequency of the MR system.

In both the '745 and '460 patents, the birdcage coil disclosed therein resonates in its entirety at the primary frequency but has two drive (or pickoff) points --one located 90 degrees from the other on one of the end rings-- from which the current (resulting from the MR signals detected by the birdcage) is picked off for conveyance to the MR system. Like other conventional birdcage coils, the birdcage coils of the '745 and '460 patents thus each contain a single primary resonant structure. By virtue of its two drive points, this birdcage coil is operated in quadrature.

As noted in previous correspondence, the '799 patent discloses an array of conventional birdcage coils, all of which being identical. Each birdcage disclosed therein is a conventional birdcage coil in that it resonates in its entirety at the primary frequency and thus contains a single primary resonant structure. Unlike the birdcage of the '745 and '460 patents, however, this one has two drive points attached not to an end ring but to rods located 90 degrees apart.

The bottom line is that a conventional birdcage coil functions as a single resonant structure for the purposes of detecting the MR signals at the operating frequency of the MR system. A conventional birdcage coil thus operates as a single primary resonant structure at the operating frequency; all secondary resonances occurring within it are ignored. In the '745, '460 and '799 patents, two drive points are attached to that single primary resonant structure to enable quadrature operation. Unlike the claims at issue, none of these patents teach a single birdcage-like structure (or any other unitary structure) that has a plurality of primary resonant substructures produced/functioning within it. Further, it also follows that none of these patents teach a plurality of partially-overlapped primary resonant substructures within a single coil structure, particularly one in which each such primary resonant substructure is partially overlapped by its neighbor(s) and with whom it electrically shares a region of overlap created thereby. The claims are distinguishable on these same grounds over U.S. Patent 5,602,479 to *Srinivasan et al.*, which the Examiner cited in the first Office Action.

Lastly, the fact that the '799 patent teaches an array of birdcage coils is not relevant to the claims at issue. Although the birdcage coils are positioned side-by-side in a honeycomb/hexagonal arrangement, they are still separate coil structures. Moreover, the birdcage coils 56 really do not even overlap each other, as each such birdcage coil

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56 is each mounted within its own acrylic support 62 (Fig. 4; col. 7, lines 4-11), which precludes physical overlap.

On a related note, because the claims at issue are directed to either a "head coil" or a "coil," and not to an array, it is respectfully submitted that the word "single" need not be inserted before the claim term "birdcage structure." It is believed that the existing claim language already makes that point abundantly clear. Nevertheless, independent claim 163 has been amended to add the language "to form a unitary structure therewith" even though it is believed that said language is redundant given that the claim is directed to a coil. By doing so, it should be noted in the record that Applicants are not in any way surrendering their rights to exclude others from making an array of their claimed coils as any such array would contain at least one of their claimed coils.

Finally, on another matter, claims 99, 117 and 140 each recite that the claimed configuration "enabl[es] each of said primary resonant substructures to convey the magnetic resonance signals received thereby via a separate port to the MR system." It should be noted that the use of the term "separate port" is not intended to require each primary resonant substructure to be linked "directly" to its own receiver in the MR system by that separate port. This is why the "direct" language does not appear. The cited passage thus encompasses more than just each primary resonant substructure having its own port (e.g., Port I in Figure 2A) through which the MR signals it detects is provided directly to an MR receiver. It is also intended to cover the case where a primary resonant substructure has its MR signals via its own port combined with the MR signals from one or more other substructures via their separate port(s), with the combined MR signals then routed to the MR system."

8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Examiner's Comment

Drawings

9. The official draftsperson has objected to the drawings submitted on August 22nd 2005, See the attached PTO 948 Notice of Official draftsperson Review attached to this office action.

10. A complete set of **New Formal Drawings**, which correct the problems in compliance with 37 CFR 1.121(d) noted in the attached PTO 948 Notice of Official draftsperson Review of **December 5th 2005** which is attached to this office action is now required in order to avoid ABANDONMENT of the instant application. The requirement for corrected New Formal drawings will not be held in abeyance. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings.

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Prior art of Record

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A) **Srinivasan et al.**, US patent 5,664,568 issued September 9th 1997.

B) **Reisker et al.**, US patent **6,344,745** issued Feb. 5th 2002, filed November 24th 1999, with an effective US priority date of November 25th 1998.

C) **Reisker et al.**, US patent Application Publication **2003/0071622 A1** published April 17th, 2003, filed February 5th 2002, which is a continuation of **Reisker et al.**, US patent 6,344,745 and has an effective US priority date of November 24th 1999.

D) **Reisker et al.**, US patent **6,831,460 B2** issued December 14th 2004 filed February 5th 2002, which corresponds to: **Reisker et al.**, US patent Application Publication 2003/0071622 A1 published April 17th, 2003, which is a continuation of **Reisker et al.**, US patent 6,344,745 and has an effective US priority date of November 24th 1999.

E) **Srinivasan et al.**, US patent **5,602,479** issued February 11th 1997.

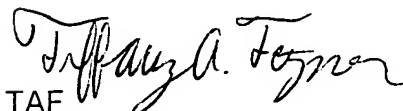
F) **The Prior art cited on the 892** attached to this office action, which comprises the **Bock et al.**, references, noted above among others.

G) **All of the prior art of record** listed on the **Information Disclosure Statement** submitted August 17th 2005.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tiffany Fetzner whose telephone number is: (571) 272-2241. The examiner can normally be reached on Monday-Thursday from 7:00am to 4:30pm., and on alternate Friday's from 7:00am to 3:30pm.

13. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez, can be reached at (571) 272-2245. The **only official fax phone number** for the organization where this application or proceeding is assigned is **(571) 273-8300**.


TAF

December 5, 2005



Diego Gutierrez
Supervisory Patent Examiner
Technology Center 2800